

UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: October 25, 1973

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD
at its office in Washington, D. C.
on the 10th day of October 1973

FORWARDED TO:)
Honorable Alexander P. Butterfield)
Administrator)
Federal Aviation Administration)
Washington, D. C. 20591)

SAFETY RECOMMENDATIONS A-73-105 & 106

A significant advance toward improved crew protection has been made by recent rulemaking requirements that crewmembers of transport-category aircraft operating under 14 CFR 121 wear their shoulder harnesses during takeoff and landing. Similarly, the recently issued Notice of Proposed Rule Making 73-1, "Crashworthiness of Small Airplanes," proposes to provide for the installation and use of shoulder harnesses for occupants of small airplanes. The provisions of this NPRM will afford a significant amount of additional protection to virtually the entire aviation population.

The National Transportation Safety Board is encouraged by these steps, which are positive indications of the increased emphasis being placed on accident survivability. However, the Board believes that further consideration is merited for including in these shoulder-harness provisions the following two categories of aircraft:

Transport Category Aircraft Certificated Prior to 1958

In a letter dated January 29, 1973, to the Administrator, Federal Aviation Administration, the Safety Board stated that Part 121 should be amended to require that all transport-category aircraft be equipped with shoulder harnesses after a reasonable date in order to encompass all air commerce segments, regardless of the type of equipment flown. We expressed this opinion in light of the findings made during the investigation of a Mohawk Airlines FH-227 which crashed into a residence at Albany, New York, on March 3, 1972, killing 14 passengers as well as the 2 crewmembers in the cockpit. The Safety Board's investigation revealed that both pilots probably could have survived if they had worn shoulder harnesses. Expert medical testimony corroborated our findings.

In the recent Ozark FH-227 accident at St. Louis, Missouri, on July 23, 1973, both pilots survived the accident but suffered serious injuries. Our investigation revealed that the copilot received a serious head injury because he was thrown against the instrument panel. The captain sustained several rib fractures when he was thrown into the control wheel. He also received serious head injuries.

The FH-227 is now exempted by 14 CFR 121 from the shoulder-harness requirement, since it was type certificated prior to January 1, 1958. Federal Aviation Administration statistics show that approximately 268 aircraft are still in use which are so exempted. The recent Ozark accident not only reemphasizes the need for shoulder-harness protection in these aircraft but also focuses attention on the less stringent safety provisions for pilots who fly older equipment.

In light of this discussion, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Amend 14 CFR 121 to require that all transport-category aircraft certificated prior to January 1, 1958, be equipped with shoulder harnesses at each crew station, after a reasonable date, to allow operators to retrofit their equipment. A-73-105

Corporate/Executive Aircraft

Our review of the impact of FAA's recent rulemaking action to improve the safety of flightcrews disclosed that with implementation of the provisions of NPRM 73-1, virtually all pilots will benefit from shoulder-harness protection with the exception of pilots who fly large corporate and executive aircraft. The Board is not aware of any existing or proposed requirement for shoulder harnesses for this class of aircraft operating under the rules of 14 CFR 91. Specifically, although 14 CFR 25 requires provisions for shoulder harnesses in such aircraft, Part 91 does not now require, and the proposed changes of NPRM 73-1 would not provide for, the installation of such restraint in large corporate and executive aircraft.

On February 21, 1973, a Lear Jet crashed at Willow Run Airport, Ypsilanti, Michigan. Although the cockpit remained structurally intact, both crewmembers died as a result of loss of restraint when their seatbelts failed at the outboard attach points. Our investigation disclosed that shoulder harnesses not only would have redistributed the forces applied to the seatbelts, thereby reducing the possibility of failure, but also would have prevented violent upper torso movement, thereby alleviating the crewmembers' injuries.

In order to provide increased protection for crewmembers, and to avoid a potential inconsistency in the regulations, the Safety Board believes that steps should be taken to require the installation of shoulder harnesses in large corporate and executive aircraft. Accordingly, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Amend 14 CFR 91 to require the installation of shoulder harnesses at flight deck stations on large aircraft which operate under this Part. *A-73-106*

REED, Chairman, McADAMS, THAYER, and HALEY, Members, concurred in the above recommendations. BURGESS, Member, was absent, not voting.


By: John H. Reed
Chairman

THESE RECOMMENDATIONS WILL BE RELEASED TO THE PUBLIC ON THE DATE SHOWN ABOVE. NO PUBLIC DISSEMINATION OF THIS DOCUMENT SHOULD BE MADE PRIOR TO THAT DATE.